

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—Mr. J. B. Peace, of Emmanuel College, has been appointed Demonstrator of Mechanism and Applied Mechanics, in the place of Mr. Dunkerley, resigned. Mr. H. Higgins, of King's College, has been re-appointed Demonstrator of Anatomy.

Prof. Bradbury has been re-appointed Assessor to the Regius Professor of Physic.

Mr. A. Munro (Queens') and Mr. Lay (St. Catharine's) have been appointed Moderators, and Mr. Macdonald (Clare), with Mr. Bennett (Emmanuel), Examiners, for the Mathematical Tripos 1898. Sir R. S. Ball has been appointed an Elector to the Isaac Newton Studentships.

Mr. W. G. Fraser, Senior Wrangler 1896, has been elected to a Fellowship at Queens' College. At Trinity College Mr. W. Morley Fletcher, First-class Natural Sciences Tripos 1894-95, and Mr. F. W. Lawrence, bracketed fourth Wrangler 1894, bracketed second Smith's Prizeman 1896, have been elected to Fellowships.

AT the opening of the session of the Royal College of Science on Wednesday, October 6, Prof. Roberts-Austen, C.B., D.C.L., delivered an address and distributed the prizes. He said that in this memorable year they would remember that the part taken by His Royal Highness the Prince Consort in establishing the School of Mines, out of which the Royal College of Science had grown, made the students participants in the beneficent care which Her Majesty the Queen had ever taken to promote the advancement of science and the industrial progress of her people. At the opening ceremony, on May 12, 1851, at the museum in Jermyn-street, where the School of Mines found a home, the Prince Consort had used the following words:—"I rejoice in the proof thus afforded of the general and still increasing interest taken in scientific pursuits, while science herself, by the subdivision into the various and distinct fields of her study, aims daily more and more at the attainment of useful and practical results. In this view it is impossible to estimate too highly the advantages to be derived from an institution like this, intended to direct the researches of science and to apply their results to the development of the immense mineral riches granted by the bounty of Providence to our isles and their numerous colonial dependencies." Prof. Austen said that the last words he had quoted, struck a note which was singularly tuneful and harmonious in this year when the bonds which join the mother country to her possessions had been so materially strengthened. It might fairly be claimed that the Empire had derived advantages from the establishment of the Royal School of Mines, and from the Royal College of Science. Having taken the Prince Consort's words as his text, Prof. Austen passed in review the position of technical teaching in the fifties, and indicated the nature of the work done by the distinguished body of men, including Playfair, Hofmann, Huxley, Tyndall, Percy, Warrington Smyth, and others, who had gathered round Sir Henry de la Beche, and he showed that the great success of the students in all parts of the world had been attained by recognising that the main duty of the professors had been, not to train specialists but to give men such all-round training as should enable them to deal successfully with any problems they might encounter in life. He then spoke of the great importance to students of general culture, pointing out that it was not without reason that the designer of the Jermyn Street Museum had placed a statue of Athena in a prominent position in the lecture theatre, for Mr. Ruskin had said that the myths which had gathered round the name of Athena pointed to her as "the directress of human passion, resolution, labour, and of practically useful art. She does not make men learned, but prudent and subtle; she does not teach them to make their work beautiful, but to make it right." Prof. Austen said that the students' work would never be right if they neglect the treasures of thought which come to us from antiquity. He urged them day by day to devote a few moments to the effort to really understand some marvel of the fifteenth century construction, by Da Vinci or by others who designed it at a time before the professions of engineer and architect were divided. Or they might examine some fragment of Japanese art metal work which in itself epitomised an advanced knowledge of metallurgy. If they used the museum in this way they would find that they were insensibly widening their intellectual field, and, at the same time, cultivating it with success.

THE new University Hall at Bangor, for women students of the University College of North Wales, was formally opened on Saturday last by Miss Helen Gladstone. Mr. Acland delivered an address on "Secondary Education in England and Wales."

AFTER an examination by the Agricultural Department of the Reading University Extension College, Mr. J. C. Fryer has been elected to the Senior Agricultural Scholarship given by the County Council. The Scholarship is of the annual value of 30*l.* (which may be increased at the discretion of the sub-committee to 50*l.*) per annum for two years, and is tenable at the Reading University Extension College.

THE Committee for the establishment of University Fellowships in the University of Wales have just presented their report to the Senate. The proposed Fellowships are to be confined to graduates of the University who are in the active pursuit of original investigation, and in residence at some constituent college or other seat of learning. They are to be tenable for two years, with possible renewal for a third year in cases of exceptional merit. It is proposed that the Fellowships should not be tenable concurrently with other similar endowments or paid appointments, as the Fellowships contemplated are to be of sufficient value to enable the holders to devote their whole time to research.

As the result of the past session's work students of the Engineering Department of University College, Liverpool, have gained the following successes:—Mr. W. H. Riddlesworth, holding a County Council Scholarship, succeeded in gaining the University Scholarship in open competition, which is the blue ribbon of the University in this subject. Mr. Riddlesworth has since been appointed private assistant to Dr. Francis Elgar, Manager Director of the Fairfield Engineering and Shipbuilding Company, Limited. Mr. E. Brown, holding a Ranger Scholarship, has been awarded the Sir David Gamble Scholarship for the purpose of prosecuting a research and continuing his studies in electrotechnics. Mr. P. S. Couldrey and Mr. C. H. Stewart, holders of City and County Scholarships respectively, have been awarded National Scholarships. Mr. E. J. Kipps, holding a Derby Exhibition from the Bootle Technical School, succeeded in securing the second place in the list of Whitworth Exhibitions. Mr. R. Nelson, the Sir Edward Harland Scholar, also obtaining a Whitworth Exhibition. Mr. F. H. Phillips, the holder of the Sir Richard Moon Scholarship from Crewe, has been awarded a Royal Exhibition in connection with the Science and Art Department examinations. Mr. W. L. Brown, after completing a lengthy research upon the Elasticity and properties of cement in connection with his University Research Scholarship, which has been accepted by the Institution of Civil Engineers, has been appointed by Sir Benjamin Baker to a position on the Central London Railway. Mr. J. T. Farmer, who was awarded an 1851 Exhibition Scholarship, after completing a research at Montreal on the action of jets of water, which was published by the Royal Society of Canada, has been the recipient of the honorary degree of M.Sc. of the Montreal University.

THE recent munificent gifts to Owens College, Manchester, were briefly mentioned in last week's NATURE. A full report of the meeting of the Court of Governors of the College at which the announcements of the donations were made, appeared in the *Manchester Guardian* of Wednesday, October 6, from which we reprint the resolutions of thanks passed by the Court. No apology is needed in referring again to gifts so liberal as those which Owens College has just received. The following are the resolutions which were adopted by the Court:—(1) "That the Court has heard with the greatest satisfaction and pleasure of the magnificent offer by Mr. Christie of a sum not less than 50,000*l.*, being the third at his disposal of the balance of the estate of the late Sir Joseph Whitworth, for the erection of a College hall and the completion, so far as the amount available will extend, of the College buildings; that the Court desires to express to Mr. Christie its sincere thanks for his splendid gift, which will meet a most important and long-felt need, and, besides adding to the outward importance and dignity of the College, greatly promote the cohesion of its inner life; that the Court requests the Council to provide for the association of the late Sir Joseph Whitworth's name with the proposed new buildings, in accordance with Mr. Christie's desire; and that the Court recognises with the deepest pleasure the proof furnished by Mr. Christie's present magnificent offer, as well as by his former gift of the buildings of the Christie

Library, of the deep personal interest taken by him in the progress of the College as a place of higher education and learning." (2) "That the Court accepts with great pleasure the munificent offers of two friends of the College of the sums of 10,000*l.* for the erection, and of 5000*l.* towards the maintenance, of suitable buildings for the physical laboratory, and requests the Principal to convey to them its sincere thanks for their wise and opportune generosity, which will enable the College to advance and develop a scientific teaching and research of the highest public importance and utility." (3) "That the Court accepts with great pleasure the generous and useful gift of Mr. Edward Holt to the College, and desires the Treasurer to express their best thanks to him. The Court also hopes that the Council will take steps to associate the name of Mr. Holt in some permanent manner with the new gymnasium."

SEVERAL of the London polytechnics have commenced the present session with some new developments in their day work. The Battersea Polytechnic is inaugurating day courses in technological chemistry, specially adapted to persons engaged in those industries for which a knowledge of chemistry is useful. The South-west London Polytechnic is not only developing its day engineering courses, but is also providing special facilities for students who wish to enter for the examinations of London University, and is starting a day department for women, in which opportunities will be given to pursue advanced studies in art, science, and languages. The East London Technical College, People's Palace, is further developing the day courses which were commenced last year. Courses in physics and electrical engineering are now given, as well as in chemistry and mechanical engineering, while facilities are offered to students to study for the various subjects of the London B.Sc. examinations. The Borough Polytechnic, besides adding considerably to its provision of scientific and technical instruction for artisans, has opened a technical day school for boys, which is specially designed to fit its pupils for entering on industrial life.

SCIENTIFIC SERIALS.

American Journal of Science, September. — Principal characters of the Protoceratidæ, by O. C. Marsh. The genus *Protoceras*, described by the author in 1891, from the Miocene of South Dakota, is now known to include some of the most interesting extinct mammals yet discovered. It likewise represents a distinct family, and thus deserves careful investigation and description. Before this discovery, no horned artiodactyles were known to have lived during Miocene time, and *Protoceras* is thus the earliest one described. The type specimen, moreover, had a pair of horn-cores on the parietals, and not on the frontals, as in modern forms of this group. The animal was apparently a true ruminant, nearly as large as a sheep, but of more delicate proportions. Another notable feature is the very large, open nasal cavity. This peculiar feature is of even greater importance than the horn-cores, and indicates clearly in the living animal a long flexible nose, if not a true proboscis. The paper is illustrated by a series of admirable plates. — The theory of singing flames, by H. V. Gill. If a singing flame is produced by inserting a burning gas jet into a tube, the pressure during a condensation forces the burning gas back into the nozzle of the jet. This can be made evident by observing the image of the flame in a rotating mirror, when a small flame is seen below the level of the nozzle, corresponding to the gaps in the main flame. — Oscillatory discharge of a large accumulator, by J. Trowbridge. The discharge from a large number of Planté cells is characterised by a sibilant flame which, by quickly separating the spark terminals, can be drawn out to a length of several feet. It closely resembles the light produced by passing an electric spark through lycopodium powder. When a photograph of this flaming discharge is examined, it is seen to have an intensely bright spark as a nucleus. By using an arrangement to blow out the flame, it was found possible to examine the spark by means of a revolving mirror. The photographs then showed five or six distinct oscillations. The author concludes that a cell may be regarded as a leaky condenser, and that its discharge is always essentially oscillatory. — Electric discharges in air, by the same author. The voltaic arc is a kind of flaming discharge as above described. Its resistance may be studied by the damping method. The author fed an arc light by a continuous current and by a condenser discharge, and found the resistance to be 0.8 ohms, which was independent of the length

of the arc. — On *Pithecanthropus erectus*, by L. Manouvrier. The degree of fossilisation of the Trinil remains is such that the femur attains the weight of 1 kilogram, whereas prehistoric femurs of the same size do not exceed 350 grams. The important fact established by Dubois is that the craniological inferiority of human races increases with their antiquity. The known anthropoid genus to which the intermediate *Pithecanthropus* is most closely allied is the Gibbon (*Hylobates*). If the *Pithecanthropus* was a simple precursor of man, it was superior enough to the other animals to survive unless the human species hastened to annihilate this dangerous competitor. If it was an ancestor, its species lives yet in its human descendants.

Wiedemann's Annalen der Physik und Chemie, No. 9. — Action at a distance, by P. Drude. Action at a distance may be defined as a relation between two bodies such that the energy of the system depends not only upon their velocities, but also upon their mutual position. Contact action may take place by impact or through the intermediary of an elastic solid or a fluid, compressible or incompressible. Gravitation has not yet been reduced to a contact action, owing chiefly to the fact that its velocity of propagation through space has not yet been ascertained. According to Laplace, this velocity must be at least ten million times that of light. — Grey and red incandescence, by O. Lummer. Draper's assertion that all bodies begin to glow at the same temperature has been disproved by H. F. Weber and Emden, who showed that the first indication of a grey misty light occurs at temperatures ranging from 403° (German silver) to 423° (gold). The grey glow appears to fluctuate and fit about, but the image becomes fixed as soon as the red glow sets in. This may be explained by the constitution of the eye. The rods perceive the grey glow. The fovea centralis contains no rods, and hence the light is not seen if looked at direct. The cones, on the other hand, are the instruments of colour perception. They alone line the fovea centralis, and hence the red light is seen in its proper place. At a sufficiently feeble intensity the solar spectrum appears colourless along its entire length. — Glow on insulated conductors in a high-frequency field, by H. Ebert and E. Wiedemann. The authors place a wire or rod in a bulb or cylinder placed between the terminal condenser plates of a Lecher wire system, so that it hangs parallel to the axis of the condenser. A slight exhaustion suffices to produce a blue glow against both ends of the rod on the glass surface, which spreads out in all directions, and shows forms resembling Lichtenberg's figures. As exhaustion proceeds, the glow extends over the surface of the rod, and forms a bridge across the middle. The occurrence of this bridge is retarded by making the rod thicker, or using several wires, or substituting a tube for the rod. — Discharge inside a wire gauze box, by the same authors. If a cylindrical box of wire gauze is placed inside an exhausted tube, the glow of the gas is observed to penetrate inside the gauze, especially if the box is short. — Method of making lines on glass visible as light on a dark ground, by F. F. Martens. If a glass plate is illuminated through its end surfaces, no light penetrates through the large surfaces owing to total reflection. But if lines are etched into them or cut with a diamond, they appear bright on a dark ground. — Electric viscosity of insulators, by G. Quincke. The logarithmic decrement of a glass sphere suspended from the arm of a balance in ether is increased from 0.0210 to 0.0608 in a field produced by 2000 volts. The difference may be termed the electric viscosity.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, October 4. — M. A. Chatin in the chair. — On ancient glass mirrors backed with metal, by M. Berthelot. A description of some mirrors, of Gallo-Roman origin, dating from the third or fourth century. The metallic backing consists of lead, which would appear to have been applied in a molten state to the glass. — On the number and symmetry of the fibrovascular bundles of the petiole, in the measurement and classification of plants, by M. A. Chatin. — Observations on the sun, made at the Observatory of Lyons with the Brunner equatorial during the second quarter of 1897, by M. J. Guillaume. The results are summarised in three tables, showing the sunspots, their distribution in latitude, and the distribution of the facule in latitude. — Orthogonal systems for the derivatives of the θ -functions of two arguments, by M. E.